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ULTRASONIC EVALUATION OF THERMAL DEGRADATION IN ADHESIVE BONDS

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Abstract

Thermal degradation of adhesive bonds in lap joints is studied by **means** of an ultrasonic nondestructive evaluation technique, 'I'he leaky Lamb wave phenomenon **based** on an angular **insonification** of the specimen **is** used to determine **the** adhesive bond properties, The dispersion curves are **measured** for aluminum and titanium lap **joints** in the bonded **region** before and after heating the **specimen at 220°C** for one **hour. The** dispersion curves away from the bonded part were **also** measured **as** a reference, The **results show** that there **is** a **significant** difference in **the** dispersion curves between the heat damaged and undamaged specimens in the bonded region, while there **is** no change in the reference position. The degree of degradation of the **adhesive bonds is** determined through comparison of the experimental data and the theoretical calculations.